

WHAT IS CLAIMED IS:

1. A microstrip line, comprising:
a dielectric substrate having a front surface and a back surface;
a ground electrode provided on the back surface of said dielectric substrate; and
a strip conductor provided on the front surface of the dielectric substrate,
wherein the strip conductor includes a line electrode and edge electrodes provided at edges on both sides of the line electrode and along an entire length of the line electrode, and the edge electrodes are arranged to face away from the front surface of the dielectric substrate.
2. The microstrip line according to Claim 1, wherein a pair of reinforcing components made of a material having a small dielectric loss are provided on the front surface of the dielectric substrate to support the edge electrodes.
3. The microstrip line according to Claim 2, wherein the reinforcing components are defined by insulating films made of a resin material.
4. The microstrip line according to Claim 2, wherein the reinforcing components are made of a ceramic material.
5. The microstrip line according to Claim 2, wherein a line groove is provided between the pair of reinforcing components, with the front surface of the dielectric substrate defining a bottom of the groove, said line groove includes sides that are substantially perpendicular to the front surface of the dielectric substrate, the line electrode is provided at the bottom of the line groove, and the edge electrodes are linked along the entire length of the line electrode and the edges of the line electrode are located on the sides of the line groove.

6. The microstrip line according to Claim 2, wherein a line groove is provided between the pair of reinforcing components, with the front surface of the dielectric substrate defining a bottom of the groove, said line groove includes sides that are inclined to the front surface of the dielectric substrate, the line electrode is provided at the bottom of the line groove, and the edge electrodes are linked along the entire length of the line electrode and the edges of the line electrode are located on the sides of the line groove.

7. The microstrip line according to Claim 2, wherein the edge electrodes include a flat portion extending substantially parallel to the front surface of the dielectric substrate along the top of the reinforcing components.

8. The microstrip line according to Claim 2, wherein a portion of the line electrode extends between the reinforcing components and the front surface of the dielectric substrate.

9. The microstrip line according to Claim 1, wherein a flat electrode links upper ends of the edge electrodes.

10. The microstrip line according to Claim 9, wherein a space surrounded by the line electrode, the flat electrode, and the edge electrodes is filled with a filler having a small dielectric loss.

11. The microstrip line according to Claim 1, wherein a reinforcing layer overlaps the front surface of the dielectric substrate and is made of a material with a small dielectric loss, such that the reinforcing layer supports the edge electrodes.

12. A microstrip line, comprising:
a dielectric substrate having a front surface and a back surface;

a ground electrode provided on the back surface of said dielectric substrate; and

a line electrode provided on the front surface of the dielectric substrate; wherein edge electrodes are provided at edges on both sides of the line electrode, and said edge electrodes are arranged substantially perpendicular to the front surface of the dielectric substrate.

13. The microstrip line according to Claim 12, wherein a pair of reinforcing components made of a material having a small dielectric loss are provided on the front surface of the dielectric substrate to support the edge electrodes.

14. The microstrip line according to Claim 13, wherein the reinforcing components are defined by insulating films made of a resin material.

15. The microstrip line according to Claim 13, wherein the reinforcing components are made of a ceramic material.

16. The microstrip line according to Claim 13, wherein a line groove is provided between the pair of reinforcing components, with the front surface of the dielectric substrate defining a bottom of the groove, said line groove includes sides that are substantially perpendicular to the front surface of the dielectric substrate, the line electrode is provided at the bottom of the line groove, and the edge electrodes are linked along the entire length of the line electrode and the edges of the line electrode are located on the sides of the line groove.

17. The microstrip line according to Claim 13, wherein a line groove is provided between the pair of reinforcing components, with the front surface of the dielectric substrate defining a bottom of the groove, said line groove includes sides that are inclined to the front surface of the dielectric substrate, the line electrode is provided at the bottom of the line groove, and the edge electrodes

are linked along the entire length of the line electrode and the edges of the line electrode are located on the sides of the line groove.

18. The microstrip line according to Claim 13, wherein the edge electrodes include a flat portion extending substantially parallel to the front surface of the dielectric substrate along the top of the reinforcing components.

19. The microstrip line according to Claim 13, wherein a portion of the line electrode extends between the reinforcing components and the front surface of the dielectric substrate.

20. The microstrip line according to Claim 12, wherein a flat electrode links upper ends of the edge electrodes.

21. The microstrip line according to Claim 20, wherein a space surrounded by the line electrode, the flat electrode, and the edge electrodes is filled with a filler having a small dielectric loss tangent.

22. The microstrip line according to Claim 12, wherein a reinforcing layer overlaps the front surface of the dielectric substrate and is made of a material with a small dielectric loss tangent, such that the reinforcing layer supports the edge electrodes.

23. A microstrip line, comprising:
a dielectric substrate having a front surface and a back surface;
a ground electrode provided on the back surface of said dielectric substrate; and
a line electrode provided on the front surface of the dielectric substrate;
wherein edge electrodes are provided at edges on both sides of the line electrode, and said edge electrodes are disposed at an angle relative to the front surface of the dielectric substrate.

24. The microstrip line according to Claim 23, wherein a pair of reinforcing components made of a material having a small dielectric loss are provided on the front surface of the dielectric substrate to support the edge electrodes.

25. The microstrip line according to Claim 24, wherein the reinforcing components are defined by insulating films made of a resin material.

26. The microstrip line according to Claim 24, wherein the reinforcing components are made of a ceramic material.

27. The microstrip line according to Claim 24, wherein a line groove is provided between the pair of reinforcing components, with the front surface of the dielectric substrate defining a bottom of the groove, said line groove includes sides that are substantially perpendicular to the front surface of the dielectric substrate, the line electrode is provided at the bottom of the line groove, and the edge electrodes are linked along the entire length of the line electrode and the edges of the line electrode are located on the sides of the line groove.

28. The microstrip line according to Claim 24, wherein a line groove is provided between the pair of reinforcing components, with the front surface of the dielectric substrate defining a bottom of the groove, said line groove includes sides that are inclined to the front surface of the dielectric substrate, the line electrode is provided at the bottom of the line groove, and the edge electrodes are linked along the entire length of the line electrode and the edges of the line electrode are located on the sides of the line groove.

29. The microstrip line according to Claim 24, wherein the edge electrodes include a flat portion extending substantially parallel to the front surface of the dielectric substrate along the top of the reinforcing components.

30. The microstrip line according to Claim 24, wherein a portion of the line electrode extends between the reinforcing components and the front surface of the dielectric substrate.

31. The microstrip line according to Claim 23, wherein a flat electrode links upper ends of the edge electrodes.

32. The microstrip line according to Claim 31, wherein a space surrounded by the line electrode, the flat electrode, and the edge electrodes is filled with a filler having a small dielectric loss tangent.

33. The microstrip line according to Claim 23, wherein a reinforcing layer overlaps the front surface of the dielectric substrate and is made of a material with a small dielectric loss tangent, such that the reinforcing layer supports the edge electrodes.

34. A microstrip line, comprising:
a dielectric substrate having a front surface and a back surface; and
a ground electrode provided on the back surface of said dielectric substrate;

wherein a pair of reinforcing components composed of a material with a small dielectric loss are arranged substantially parallel to each other, a line groove is provided between the pair of reinforcing components, with the front of the dielectric substrate defining a bottom of the groove, and said line groove being filled in with an electroconductive material to define a line electrode.

35. A microstrip line, comprising:
a laminated substrate having a first lamination component defined by a plurality of dielectric layers, and a second lamination component defined by at least one dielectric layer; and

a ground electrode provided on a back surface of the first lamination component of the laminated substrate;

wherein the second lamination component includes a strip conductor mounted thereon and made of an electroconductive material that fills a line groove including a line formation hole in a dielectric sheet in which the second lamination component is provided.

36. A resonator device, including the microstrip line according to Claim 1.

37. A filter, including the resonator device according to Claim 36.

38. A high frequency circuit, including the microstrip line according to Claim 1.

39. An electronic circuit, comprising:
a transmission line; and
a resonator device and a filter electrically linked to said transmission line,
wherein the transmission line includes the microstrip line according to Claim 1.

40. The electronic circuit according to Claim 39, further comprising the resonator device according to Claim 36.

41. The electronic circuit according to Claim 39, further comprising the filter according to Claim 46.

42. A circuit module, including the electronic circuit according to Claim 38 on a dielectric substrate.

43. A communications device, including the electronic circuit according to Claim 38.

44. A communication device according to Claim 43, further comprising the circuit module according to Claim 39.